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Atty's 23251

Pat. App. 10/528,378

CLAIM AMENDMENTS

1-20. (canceled)

21. (previously presented) A printing process for obtaining patterns of nanometer and micrometer dimensions on a substrate, comprising the steps of sequentially:

forming a solution or suspension of an evaporable liquid and a printing material,

applying a layer of the solution or suspension to said substrate,

positioning, without applying pressure, of a stamp provided with relief patterns at a distance of 0 nm to 500 μ m from the substrate with the relief patterns in contact with the layer of the solution or suspension,

evaporating only the evaporable liquid from said solution or suspension from between the substrate and the stamp without evaporating the printing material so as to draw the suspension or solution by capillarity to the relief patterns and deposit the printing material on the substrate in accordance with the relief patterns of the stamp, and

thereafter separating the stamp from the substrate and leaving the printing material on the substrate.

22. (previously presented) The process according to claim 21, wherein said printing material is chosen from the group consisting of soluble polymers or precursors of polymers.

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1 23. (previously presented) The process according to claim
2 22, wherein said printing material is chosen from the group
3 consisting of polyaniline, polyphenylene vinylene,
4 poly(3-alkyl-thienyl) and mixtures thereof.

1 24. (previously presented) The process according to claim
2 21, wherein said printing material is chosen from the group
3 consisting of tris-(quinoline) aluminum, coordination compounds,
4 metallic clusters, rotaxanes, polythiophenes, phthalocyanines, and
5 mixtures thereof.

1 25. (previously presented) The process according to claim
2 21, wherein said printing material is chosen from the group
3 consisting of colloidal substances and nanoparticles.

1 26. (previously presented) The process according to claim
2 25, wherein said printing material is colloidal Au or Ag.

1 27. (previously presented) The process according to claim
2 21, wherein said printing material and/or said solution or
3 suspension is chemically reactive with a surface of said substrate
4 and can produce corrosion, chemisorption, grafting or polymerization
5 of the surface.

1 28. (previously presented) The process according to claim
2 21, wherein said distance is changed during imprinting.

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1 29. (previously presented) The process according to claim
2 21, wherein said stamp has multiple protrusions of arbitrary shape
3 and dimensions.

1 30. (previously presented) The process according to claim
2 21, wherein said stamp is a hard stamp, made of chromium, steel,
3 silicon oxide, or a polymer like polymethyl methacrylate, or
4 polycarbonate.

1 31. (currently amended) The process according to claim
2 21, wherein said stamp is a stamp made of elastomeric printing
3 material.

1 32. (previously presented) The process according to claim
2 21, wherein said stamp is formed by a thin film of material that
3 floats on said solution.

1 33. (previously presented) The process according to claim
2 21, wherein the evaporable liquid is evaporated from the suspension
3 or solution at a temperature between -70 and 300 degrees Celsius.

1 34. (previously presented) The process according to claim
2 26, wherein said substrate has a surface area that is orders of
3 magnitude larger than the dimensions of the relief patterns of the
4 stamp.

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1 35. (previously presented) The process according to claim
2 21, wherein said stamp is arranged in an inclined configuration with
3 respect to a surface of said substrate, thus producing on the
4 substrate patterns with a spatially variable thickness.

1 36. (previously presented) The process according to claim
2 21, wherein said solution contains multiple printing materials in
3 the form of solutes, said solutes being suitable to precipitate
4 selectively in different times, thus generating controlled
5 nonuniformities of composition in the resulting patterns.

1 37. (previously presented) The process according to claim
2 21, wherein said solution contains imprinting materials in amounts
3 suitable to react in reaction volumes on the order of magnitude of
4 picoliters.

38 - 40. (canceled).

1 41. (previously presented) The process defined in claim
2 31 wherein the printing material is polydimethyl siloxane.